UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/454,057	12/02/1999	FRANK M.G. DOERENBERG	543-98-015	3311

7590 03/22/2005	**EXAMINER**
JEANNE C SUCHODOLSKI	NGUYEN, CHAU T
ALLIEDSIGNAL INC	

ART UNIT	PAPER NUMBER
2176	

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DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _14 July 2003_.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-34_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-34_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Amendment, received 07/14/2003, has been entered. Claims 1-34 are presented

for examination.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1, 16 and 30-34 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Games et al. (Games), U.S. Patent No 3,755,628 and further in view

of Birkedahl et al. (Birkedahl), US Patent No. 6,133,846.

4.   As to claims 1, 30 and 34, Games discloses a network topology backplane bus

architecture comprising:

a plurality of independent data communication lines (col. 3, lines 38-60 and Fig.

2: three channels designated A, B, and C);

a plurality of processing nodes sharing the independent data communication

lines for data communication (col. 3, lines 38-60 and Fig. 2: communication units J, K, L

and M, and each unit links to three channels);

dividing a plurality of data communication lines into mutually exclusive first and second subsets of data communication lines (col. 3, lines 38-60 and Fig. 2: three channels designated A, B, and C);

one of the processing nodes being connected for both transmitting and receiving on a first subset of the data communication lines and receiving on a second subset of the data communication lines (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3) ; and

another of the processing nodes being connected for both transmitting and receiving on the second subset of the data lines and receiving on the first subset of the data lines (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3).

However, Games does not explicitly disclose one of the processing nodes being connected for only receiving on a second subset of data communication lines and another of said processing nodes being connected for only receiving on said first subset of said data lines. Birkedahl discloses in the Abstract, col. 4, lines 5-34 and Fig. 3: component 110C (node) connects to bus 107L (first subset) for transmitting and receiving data, and component 110C connects to bus107R (second subset) for receiving data only; component 110E (another node) connects to bus 107R (second subset) for transmitting and receiving data, and the component 110E connects to bus 107L (first subset) for receiving data only. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Birkedahl and Games to include one of the processing nodes being connected for only receiving on a second subset of data communication lines and another of said

processing nodes being connected for only receiving on said first subset of said data lines to provide bus communication architecture that provides reliable and redundant data communication with a high bandwidth.

5.   As to claim 16, Games discloses a network topology backplane bus architecture comprising:

a plurality of processing nodes transmitting and receiving data communications (col. 3, lines 38-60 and Fig. 2: communication units J, K, L and M, and each unit links to three channels);

a plurality of independent data communication networks formed of a plurality of independent data communication lines, a subset of said data communication networks extending between ones of said plurality of processing nodes (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3: three channels designated A, B, and C and communication units J, K, L and M, and each unit links to three channels);

a first subset of ones of said data communication lines allocated to a first of said processing nodes for transmitting and receiving data communications, said first subset of said data communication lines further allocated to a second of said processing nodes (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3);

a second subset of ones of said data communication lines allocated to said second processing nodes for transmitting and receiving data communications, said second subset of said data communication lines further allocated to said first processing nodes (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3);

However Games does not explicitly disclose monitoring data communications transmitted on said first subset and second subset of said data communication lines and receiving data communications as a function of said monitoring of said data communications transmitted on said first subset and second subset of said data communication lines. Birkedahl discloses all components (processing nodes) monitor transmissions of all other nodes and buses (data communication lines), and a controller monitors data communications of each component and compares the content of data received with the timing table stored in memory (col. 5, line 28 – col. 6, lines 58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Birkedahl and Games to include monitoring data communications transmitted on said first subset and second subset of said data communication lines and receiving data communications as a function of said monitoring of said data communications transmitted on said first subset and second subset of said data communication lines. Birkedahl suggests that by monitoring the flow of data on the buses (data communication lines), the controller can ensure that clock signals remain in check across the entire system.

6.   Claims 2-15, 17-29, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Games and Birkedahl as discussed in claims 1, 16, 30 and 34 above and further in view of Baker et al., U.S. Patent No. 5,325,517.

7.   As to claims 2-3, 18, 20, 25-26 and 32-33, however, Games and Birkedahl do not

disclose ones of the independent data communication lines comprise a first

independent data communication network and different ones of the independent data

communication lines comprise a second independent data communication network. In

the same field of endeavor, Baker discloses a prior art IBM System/88 module, plural

modules interconnected by high speed data interconnections and plural modules

interconnected via a network in a fault tolerant environment (col. 4, line 66 – col. 5, line

2, and col. 22, lines 11-67). Thus, it would have been obvious to one of the ordinary

skill in the art at the time of the invention was made to combine the teaching of Games

and Baker to include ones of the independent data communication lines comprise a first

independent data communication network and different ones of the independent data

communication lines comprise a second independent data communication network in

order to share information.

8.   As to claim 4, Games, Birkedahl, and Baker (Games-Birkedahl-Baker) disclose

the one of the processing nodes transmitting and receiving on a first subset of the data

communication lines utilizes the first subset of the data communication lines for local

communication within the processing node (Baker, col. 23, line 8 – col. 24, line 36).

9.   As to claim 5, Games-Birkedahl-Baker disclose one of the processing nodes

transmitting and receiving on a first subset of the data communication lines further

utilizes the first subset of the data communication lines for broadcasting transmissions

to another of the processing nodes (Games, col. 5, line 24 – 6, line 67, and Fig. 3 and

5).

10.   As to claim 6, Games-Birkedahl-Baker disclose one of the processing nodes

transmitting and receiving on a first subset of the data communication lines further

utilizes the first subset of the data communication lines for receiving data transmission

from another of the processing nodes (Games, col. 5, line 24 – 6, line 67, and Fig. 3 and

5).

11.   As to claim 7, Games-Birkedahl-Baker disclose one of the processing nodes

transmitting and receiving on a first subset of the data communication lines is one of a

plurality of the processing nodes transmitting and receiving on the first subset of the

data communication lines (Games, col. 5, line 24 – 6, line 67, and Fig. 3 and 5).

12.   As to claims 8, 19, 21, and 27, Games-Birkedahl-Baker disclose each of plurality

of processing nodes transmitting and receiving on the first subset of the data

communication lines are co-located in a first resource enclosure (Baker, col. 5, lines 15-

18, col. 18, line 66 – col. 19, line 33, col. 27, line 22 – col. 28, line 66, and col. 46, line

66 – col. 47, line, 11 and Fig. 7-9; units (processing nodes) may reside within a single

module enclosure in a fault tolerant system).

13.   As to claims 9 and 22, Games-Birkedahl-Baker disclose each of plurality of processing nodes transmitting and receiving on the first subset of the data communication lines time-share the data communication lines with others of the plurality of processing nodes transmitting and receiving on the first subset of the data communication lines (Games, col. 4, line 57 – col. 5, line 23).

14.   As to claim 10, Games-Birkedahl-Baker disclose each of plurality of processing nodes transmitting and receiving on the first subset of the data communication lines time-shares the data communication lines in synchronization with others of the plurality of processing nodes transmitting and receiving on the first subset of the data communication lines (Games, Abstract and col. 4, line 57 – col. 5, line 23).

15.   As to claim 11, Games-Birkedahl-Baker disclose the processing node transmitting and receiving on the second subset of the data lines and receiving on the first subset of the data lines utilizes the second subset of the data communication lines for local communication with the processing node (Baker, col. 23, line 8 – col. 24, line 36).

16.   As to claims 12 and 31, Games-Birkedahl-Baker disclose the processing node transmitting and receiving on the second subset of data communication lines further utilizes the second subset of the data communication lines for broadcasting

transmissions to another of the processing nodes (Games, col. 5, line 24 – 6, line 67, and Fig. 3 and 5).

17.   As to claims 13 and 17, Games-Birkedahl-Baker disclose one of the processing nodes supports different ones of flight critical functions (Games, col. 3, lines 39-60).

18.   As to claims 14, 23, and 29, Games-Birkedahl-Baker disclose one or more of the processing nodes supporting one of the flight critical functions is duplicated in one or more additional ones of the processing nodes (Games, col. 3, lines 39-60).

19.   As to claims 15, 24, and 28, Games-Birkedahl-Baker disclose one of the processing nodes supporting the one of the flight critical functions is located in a first resource enclosure; and at least on of the additional processing nodes supporting the one of the flight critical functions is located in a physically isolated second resource enclosure (Baker, col. 5, lines 15-18, col. 18, line 66 – col. 19, line 33, col. 27, line 22 – col. 28, line 66, and col. 46, line 66 – col. 47, line, 11 and Fig. 7-9).

20.   Applicant's arguments with respect to claims 1, 16, 30 and 34 have been considered but are moot in view of the new ground(s) of rejection. Please see the rejection above.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chau Nguyen whose telephone number is (571) 272-

4092. The examiner can normally be reached on 8:00 am – 5:00 pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Joseph Feild, can be reached on (571) 272-4090. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

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you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

Chau Nguyen
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Art Unit 2176

SANJIV SHAH
PRIMARY EXAMINER